FEBRUARY 3.

DR. GEORGE H. HORN in the chair.

Forty-eight persons present.

Papers under the following titles were presented for publication :—

"On the External Characters of a Fœtal Reindeer and other notes." By R. W. Shufeldt.

"Crustacea from the northern coast of Yucatan, the harbor of Vera Cruz, the west coast of Florida and the Bermuda Islands." By J. E. Ives.

FEBRUARY 10.

DR. GEORGE H. HORN in the chair.

Twenty-seven persons present.

A paper entitled, "On some recent Japanese Brachiopoda with description of a species believed to be new," by W. H. Dall and H. A. Pilsbry, was presented for publication.

Effect of environment in the modification of the bill and tail of birds.—DR. SPENCER TROTTER exhibited specimens of several of the common Finches of eastern North America, belonging to the genus *Ammodramus*. He stated that this genus, as now recognized by American Ornithologists, includes three types of birds formerly considered as representing distinct genera :—*Ammodramus, Passerculus* and *Coturniculus*. These birds undoubtedly belong to one genus and show very clearly the effect produced by environment in modifying the bill and tail and producing subgenera of birds originally coming from one stock. The species of the *Passerculus* and *Coturniculus* groups are inhabitants of the uplands and subsist mainly upon seeds which they pick up from the ground. All these birds have the short thick bill which characterizes so many of the Finch tribe. The true *Ammodrami*, however, as exemplified by the Sharp-tailed and Seaside Finches inhabit the salt marshes of the coast and subsist on the small crustacea and worms. In obtaining these animals they are compelled to probe in the soft mud in which they live and this necessity, acting through numerous generations, has produced the longer and more slender bill which characterizes these birds. The habit of clinging to the long slender reeds of the marshes and the effort to retain their perch when the reeds are swayed about by the wind has tended to produce stronger and larger feet in the true *Ammodrami* and to develope stiff pointed

tail feathers in contrast to the soft rounded tail feathers of the Savannah Sparrow and other nearly related upland Finches.

The speaker also stated that in the Bobolink, another inhabitant of reedy marshes, and in the Woodpeckers and Creepers which cling to the perpendicular trunks of trees, this modification of the tail was very clearly shown. In the case of the Nuthatch, however, which has similar habits to the Woodpecker and Creeper, the tail feathers remain soft and rounded. Mr. Witmer Stone had called the speaker's attention to this fact and had further suggested that the failure to develop stiff-pointed tail feathers in the case of the Nuthatch was probably due to the bird's habit of traveling down the tree trunks instead of up, with the head directed towards the ground. Being thus unable to utilize the tail as a means of support, there has been no opportunity for environment to act in modifying its structure.

The Sandstones of Chester Valley, Pennsylvania.—The following communication was read from Mr. Theo. D. Rand:—

I desire to announce to the Academy the finding of a rock with all the characteristics of Potsdam sandstone, on the south side of the limestone of the Chester Valley. The existence of a sandstone, supposed to be the Potsdam, on the south as well as on the north side of the valley was noted by Prof. Rogers, but no full description of it was given and his observations have been doubted. The Second Geological Survey failed to find it, indeed laid stress on its absence. The sandstone south of King of Prussia was described by the late Prof. Lewis and myself, but nothing was observed to determine its age.

The construction by the Pennsylvania Railroad of a branch from near Downingtown to Trenton has afforded a better opportunity of examining the rocks of this region than any heretofore had.

This branch, known as the Trenton Cutoff Railroad, leaves the main line at Glen Loch 25·3 miles northwest of Philadelphia and goes in a nearly straight line, varying little from N. 70° E. At Glen Loch it is in the hydromica, thence passes into limestone (No 2), with usually much soil overlying; the dip being steep to southeast.

Nearly north of Paoli Station the railroad curves slightly toward the south, crosses the road running north from Paoli Station, and then enters a considerable cut. This cut is in a very sandy slate, or slaty sandstone, and in this is one stratum which has the rhomboidal jointings, the micaceous partings and the minute tourmalines, so characteristic of the Potsdam in this part of Pennsylvania.

The road running north from Paoli Station through hydromica schist, crosses, near the north foot of the South Valley Hill, a prominent outcrop of the hydromica schist, here almost roofing slate, dipping 90° to 70°, S. 35° E.; about an eighth of a mile north of this, traces of the sandstone may be seen where the road bed has been lowered to permit the branch railroad to pass over it. The cut

mentioned is about an eighth of a mile east of this. The sandstone dips about S. 10° E., 30°.

Study of this region forced me to believe in the correctness of Mr. Hall's conclusion that the hydromica of the South Valley Hill overlies the limestone, and further, that the sandstone and limestone of Cream Valley are the Potsdam and limestone of the Chester Valley rising on the southeasterly leg of the synclinal which includes the hydromica. But if this sandstone north of Paoli is Potsdam, occurring as it does between the limestone and the hydromica, this theory is untenable and the theory of Prof. Rogers and of Dr. Frazer that the hydromica is older than the Potsdam must be correct. It is my wish to study this further but I desire to record the observation at once while the exposure is favorable for study, that others may have the opportunity to examine it.

February 17.

The President, Dr. Leidy, in the chair.

A paper entitled, "Notes on some little-known American fossil Tortoises," by Dr. G. Baur, was presented for publication.

On the Age of the Peace Creek Beds, Florida.—The following communication from Mr. Wm. H. Dall was read by the President:—

"I am just back from Florida and have been exploring Peace Creek where the fossil bones are found and have determined the stratigraphical relation of the beds they come out of. I thought you would like to know about it. They are under Marine Pliocene beds corresponding to part of the Caloosahatchie beds and overlie or are mixed with older Pliocene phosphatized rock which has many of the Caloosahatchie shells in it but which on the whole seems rather older. The bones then,—that is those from Peace Creek, which are all derived from one original stratum not over two feet thick,—are older Pliocene beyond any question. I found actually in the bed mastodon, manatee, horse, glyptodon and big turtle with others I did not recognize. I did not try to collect much, as my visit was hurried. I saw also beautiful Pliocene rock from Wakulla Co., with bones actually in it, as well as finely preserved casts of Pliocene shells. I think the big *Elephas columbi* is older than the forms above mentioned, at all events sections of its tusks are found right on top of the Miocene near Bartow and their state of fossilization is much more complete than in the case of the bones from the clay or Peace Creek beds."

On a probable new species of Bipalium.—Dr. Benjamin Sharp called attention to a large land Planarian, which had been given to